DOCUMENT RESUME

ED 177 135 SP 014 816

AUTHOR Anderson, Jonathan; Steinle, John
TITLE Student Attitudes and Motivations Towards School: Profile of Secondary School Students in South Australia and Queensland. IEA Australia Report 1978:1.
INSTITUTION Australian Council for Educational Research, Hawthorn.; International Association for the Evaluation of Educational Achievement, Hawthorn (Australia).
PUB DATE Dec 78
NOTE 41p.

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Academic Ability; Foreign Countries; Participant Satisfaction; *Secondary School Students; Self Concept; Socioeconomic Background; *Student Adjustment; *Student Attitudes; *Student Behavior; *Student Motivation
IDENTIFIERS Australia

ABSTRACT

This paper reports the results of a study on school satisfaction in two Australian States, South Australia and Queensland. The specific aims of the study were to examine feelings of satisfaction and dissatisfaction towards secondary school (including interest in subjects taken at school and their perceived relevance to future occupations) between students of different sex, different home backgrounds, different types of school, and differing abilities. (Authors)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED177135

IEA (AUSTRALIA) REPORT

1978: 1

Student Attitudes and Motivations Towards School: Profile of Secondary School Students in South Australia and Queensland

Jonathan Anderson and John Steinle

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
The Australian Council for Educational Research Limited
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

SP 014 816

IEA (International Association for the Evaluation of Educational Achievement) is an international educational research organization.
ACER (Australian Council for Educational Research) is the National Centre for IEA activities in Australia.

STUDENT ATTITUDES AND MOTIVATIONS TOWARDS SCHOOL: PROFILE OF SECONDARY SCHOOL STUDENTS IN SOUTH AUSTRALIA AND QUEENSLAND

IEA (Australia) Report 1978: 1

Jonathan Anderson and John Steinle

The Australian Council for Educational Research Limited
PO Box 210, Hawthorn, Victoria 3122.

Copyright © ACER, December 1978

ISSN 0310-558X

CONTENTS

		Page
1	Introduction	1
2	The Project	2
	Aims and purposes	2
	The data base	4
	School satisfaction and interest in subjects at school	5
	The measures	6
	Home background factors	6
	School factors	9
	Individual attributes	9
	School satisfaction	11
	Interest in school subjects	12
	Relevance of school subjects	13
	Classroom behaviour	13
	Results of the study	13
	Profile of students and schools in two States	13
	Attitudes to subjects studied at school	15
	School satisfaction	17
	Classroom behaviour	18
	Home, school and individual factors	19
	Summary and postscript	24
3	Some Comments on the Project	27
	References	34

1 INTRODUCTION

The project reported here was undertaken by the South Australian Chapter of the Australian College of Education utilizing data made available by the International Association for the Evaluation of Educational Achievement (IEA) through the auspices of the data bank archive located at the Flinders University of South Australia. The data were originally collected by Dr Malcolm Rosier, Chief Research Officer, Australian Council for Educational Research, for the IEA Science Project in 1970 and for the IEA Follow-up Project in 1972.

The project was undertaken in two parts. In the first part the basic analyses of the attitudes and motivations of a sample of students continuing at school in South Australia and Queensland were carried out. The second part involves some comment on key aspects of the project such as the educational climate at the time when the data were collected as well as the educational and socio-economic structures operating within the two States concerned. The two parts, undertaken separately, were brought together in a joint presentation to the Annual Conference of the Australian College of Education in Canberra in May 1978. This report similarly brings together the two parts, the project itself and the comments on the project.

The original collectors of the data and the IEA bear no responsibility for the analyses or the interpretations presented. These, of course, are the responsibility of the authors alone.

2 THE PROJECT

Aims and Purposes

Job satisfaction is an important goal in the work place, not least because it is considered to be associated with increased productivity. Whether or not school satisfaction is also associated with increased educational productivity, it is an important goal of enlightened administrators. We like to think that school is a happy place, or at least not an unhappy one. Yet how satisfied are students generally with school? Do students gain satisfaction from work at school? Do they agree that school days are the happiest days? How interesting do students consider the subjects they take at school? How relevant or useful do students perceive these subjects to be for their future occupations? Is school satisfaction different for male students than for female students? Does it vary according to whether students attend large schools or small schools, city or country schools, state or non-state schools? Is school satisfaction related to home background? And how does school satisfaction relate to school achievement and to academic self-concept? It is with these types of questions that this paper deals.

These kinds of questions have practical as well as theoretical interest (Jackson and Getzels, 1959). At the purely theoretical level, educational research, like research in the social sciences generally, is concerned with seeking generalizations about behaviour. In the affective domain mapped by Krathwohl et al. (1964) it is important to discover how feelings of satisfaction or dissatisfaction towards school relate to functioning within the school setting, as well as how these feelings relate to characteristics of the home and characteristics of the school itself. Keeves (1974) noted how few studies there are which have examined attitudes to school in relation to the home environment of students. There are still fewer studies which relate attitudes to school to broad features of schools like size, location and type in contrast to more micro-aspects of classrooms like methods of teaching. At the practical level, research into dissatisfaction with school has a direct bearing on the problem of irregular school attendance, highlighted in the Australian literacy and numeracy survey (Bourke and Keeves, 1977). Such research, too, may be expected to shed light on the wider problem of why students drop out of school and on the general malaise of alienation from school, identified as one of the major issues facing secondary education today (Van Til, 1976).

In the search for generalizations about human behaviour, Anderson (1969) reminds us of the twin problems arising from errors of over-generalization and under-generalization. In the one case, Anderson notes, there is the tendency to assume that what is discovered for one group of subjects applies more widely while, in the other, it is assumed that what is discovered for one particular group applies to that group alone. That the danger of cultural bias or the error of over-generalization is a potential problem in measuring attitudes towards school is evidenced in the finding that students in different countries hold quite different views about school and about learning at school (Husén, 1967). At the same time, to offset the problem of the error of under-generalization it is important to assess attitudes to school, if possible, across different education systems.

The study reported here was conducted across two state education systems, those of South Australia and Queensland. The advantages of selecting two Australian States are that the educational structures and the socio-economic structures in these States are broadly similar. Thus the problem of confounding due to the introduction of extraneous variables is minimized and possible distortion arising from examination of a single system is avoided. In any study chance relationships may emerge simply as a result of the significance levels chosen. Replication of the study reduces markedly the probability of the occurrence of spurious relationships, thereby facilitating the detection of genuine relationships between variables.

There was a further advantage of selecting South Australia and Queensland as the two States in which to assess student satisfaction with school. The project initiated by the Queensland Chapter of the Australian College of Education (Botsman, 1978) aimed to gauge public attitudes to education. In so far as Queensland and South Australia are thought to differ along certain dimensions, it was considered that a comparison between States of attitudes to education might reveal factors of considerable interest, and a decision was therefore made to replicate the attitude survey in South Australia (Dunne, 1978). However, both the Queensland project and the South Australian replication study omit possibly the most important group in the education process - students - and hence their attitudes to education. Nor does either project seek the attitudes of other concerned groups such as parents or teachers, except in an incidental way. The present study, then, in a very real sense, complements the project of the Queensland Chapter and

the replication study. While these other studies seek to determine the attitudes of the general public to education and to schools, the present investigation aims to analyse student satisfaction with school by seeking the opinions of students themselves.

In summary, this paper reports the results of a study on school satisfaction in two Australian States, South Australia and Queensland. The specific aims of the study are to examine feelings of satisfaction and dissatisfaction towards secondary school (including interest in subjects taken at school and their perceived relevance to future occupations) between students of different sex; between students from different home backgrounds; between students attending different types of school; and between students of differing abilities.

The Data Base

The data on which this study is based were originally collected as part of the international survey of science education in 19 countries (Comber and Keeves, 1973). Australia was one of the participating countries and, for Australia's part in the survey, samples of 14-year-old students were carefully selected and tested throughout the country. The sampling procedures, based on two-stage probability samples, are described in detail by Rosier and Williams (1973). Two years after the original data were collected, a decision was made by the Australian Council for Educational Research to follow up the students in Australia, now aged 16. Of the 5307 students originally sampled, 3601 could be located two years later and, of these, 2394 were still at school and 1207 had left school. A detailed description of this follow-up project is contained in Rosier (1978). In South Australia there were 498 continuing students and in Queensland, 354 continuing students. These students were attending government, Catholic and independent schools in the metropolitan and non-metropolitan regions of each State. The data for the present study are based on the responses of these 852 students, carefully sampled in the year immediately following the last compulsory year of schooling. Data were also available from their parents, teachers and schools.

This report focuses on those parts of the data relating to student satisfaction with school.

School Satisfaction and Interest in Subjects at School

School satisfaction is defined here in a similar way to the Cornell studies of satisfaction in work and retirement (Smith, 1967) as an affective response of the student to school. Satisfaction or dissatisfaction with school is seen to result from each student's experiences at school in relation to his own values, in other words, to what he wants or expects from school.

Rather surprisingly, there was not a large number of studies to suggest the likely outcomes to the questions posed in this study. At the primary level, an early study by Tenenbaum (1944) found that girls were more favourably inclined towards school than were boys but that measures of ability, achievement and conduct were not correlated with students' attitudes to school. At the secondary level, Jackson and Getzels (1959) also found sex differences and similarly noted that satisfied and dissatisfied students did not clearly differ on ability and achievement measures. Interestingly, these findings parallel those of industrial psychologists investigating work satisfaction and levels of production (Fleishman, 1967). However, these studies were not conducted in Australia and Anderson's (1969) caution, supported by Husén's (1967) findings, need to be borne in mind. Keeves (1974) described an earlier study of his which found, at the lower secondary level, that girls' liking of school was significantly stronger than that of boys in New South Wales but that in Victoria differences were not significantly different. In a further study, conducted in the Australian Capital Territory, Keeves (1972) found that girls were more positively inclined towards school than were boys.

The relationships between liking for school and home background factors were also investigated by Keeves (1972). However, no strong relationships were found to emerge in that study. No Australian studies were found in which student satisfaction with school was related directly to features of schools like size, location and type.

In the area of students' interests in subjects taken at school there are several studies which suggest that subjects like mathematics and science are preferred by males (e.g. Meyer, 1963; Keeves, 1972), while subjects like English are preferred by females. As a rule also, more girls take commercial subjects than do boys and, further, the expectation would be that girls express a higher interest in such subjects than do boys.

The only proposition, then, for which there seemed some support from previous research is that sex differences might be expected on the school

satisfaction scale and on attitudes expressed towards subjects like mathematics, science, English and commercial subjects. Whether differences would emerge between students of different home backgrounds, between students attending different types of school, between students of differing abilities, or between students in different States were open questions.

The Measures

The measures included in the study are organized into seven groups: home background factors, school factors, individual attributes, school satisfaction, interest in school subjects, relevance of school subjects, and classroom behaviour. The first three groups of measures represent the antecedent or independent variables and the last four groups of measures represent the attitudinal outcomes or dependent variables.

Home background factors

Three composite measures of the home background of students were developed following the same procedures reported by Anderson (1978). Because the composition of these measures is of importance to the present investigation, the procedures are detailed below. The measures of reliability quoted are based on the total group of students from the follow-up study continuing at school (n = 2394). The three composite measures of home background are Socio-educational Level, Literacy Resources, and Parental Encouragement.

Socio-educational Level. Socio-educational Level is a composite made up of three variables: Father's Occupation, Father's Education and Mother's Education.

Father's Occupation was coded from students' responses to the question:

1 What is your father's occupation? (If your father is dead, give your guardian's occupation, or, if you do not have a guardian, give your father's occupation before he died.)

Students were also asked to describe their fathers' occupations and responses were then coded using the Australian occupational classification developed by Broom et al. (1965). This is a nine-point scale extending from Labourer through to Upper Professional.

Father's Education and Mother's Education were elicited from two questionnaire items of the form:

2 How many years of full-time education (including school, university etc.) did your father (mother) receive? (indicate one)

A None at all (0 years)
B Up to 5 years
C More than 5 years - up to 10 years
D More than 10 years - up to 15 years
E More than 15 years

The same procedure was followed as in Rosier (1978) of adopting a 'principal components' approach and combining the three measures weighted by the corresponding rounded factor score coefficients. Students with missing data were assigned the mean socio-educational values obtained by students of the same school. The reliability of the composite variable using the omega reliability coefficient (Heise and Bohrnstedt, 1970) is 0.68 for the students continuing at school.

For the analyses reported below the combined distribution of students in South Australia and Queensland was split to form two groups. Forty per cent of students were defined as coming from homes of low Socio-educational Level and 60 per cent from homes of high Socio-educational Level.

Literary Resources. Literacy Resources in the home is a composite of the following two student questionnaire items:

1 How often is an English dictionary used by anyone in your home? (indicate one)

A often
B occasionally
C never, or we do not have an English dictionary at home

2 How many books are there in your home? (Do not count newspapers, magazines or comics.)

A none
B 1-10
C 11-25
D 26-50
E more than 50

The items were coded such that frequent use of a dictionary and greater number of books were given most weight (3,2,1 and 1,2,3,4,5 respectively). The items were then combined, doubling the weights assigned to the first

item. This procedure was equivalent, though not identical, to that of Rosier (1978). The reliability of the two-item composite using the omega coefficient (Heise and Bohrnstedt, 1970) is 0.35 for the students continuing at school.

As for Socio-educational Level, the combined frequency distribution of students in South Australia and Queensland on Literacy Resources was split to form two groups. Because of the clustering of scores, the most meaningful division resulted in 19 per cent of students in homes described as low on Literacy Resources and 80 per cent of students in homes described as high on Literacy Resources. (For one per cent of students data were missing.)

Parental Encouragement. Parental Encouragement is a composite of four items in the student questionnaire:

1 When you talk at home, do your parents (indicate one):

- A always or almost always insist that you speak correctly?
- B sometimes insist that you speak correctly?
- C let you speak how you please?

2 When you show your parents anything you have written, do they (indicate one):

- A always or almost always check your spelling?
- B sometimes check your spelling?
- C hardly ever or never check your spelling?

3 In your spare time at home, do your parents (indicate one):

- A encourage you to read (books, not comics) as much as possible?
- B sometimes suggest you read (books, not comics)?
- C not mind if you never read?

4 When you get home from school, do your parents (indicate one):

- A always or almost always want to know how you have done?
- B sometimes inquire about your school work?
- C hardly ever or never ask you about school?

The items were coded so that greater parental encouragement received the greater weight. Factor analysis revealed one major factor with factor loadings all above 0.45. Following Rosier (1978) the items were summed using unit weights. The reliability of the composite variable using the

omega coefficient (Heise and Bohrnstedt, 1970) is 0.57 for the students continuing at school.

Like the two variables above, the Parental Encouragement variable combined frequency distribution of South Australian and Queensland students was, for the analyses presented below, split to form a dichotomy. For 56 per cent of students Parental Encouragement was termed low and for 42 per cent of students Parental Encouragement was termed high. (For 2 per cent of students data were missing.)

School factors

The three features of schools for which measures were obtained were Type of School, Location of School and School Size.

Type of School. The three main types of school were coded as government, Catholic and independent. A decision was made for the analyses reported below to group Catholic and independent secondary schools together. This gave a dichotomous variable: state and non-state secondary schools. Across South Australia and Queensland, 73 per cent of the student sample were attending state schools and 27 per cent were attending non-state schools.

Location of School. If a school was located in the capital city of each State, it was coded as a metropolitan school; otherwise it was coded non-metropolitan. Across South Australia and Queensland, 61 per cent of students were identified as attending metropolitan schools and 39 per cent as attending non-metropolitan schools.

School Size. The total secondary school enrolment for each school was obtained from the School Questionnaire. If a school had a student enrolment up to 600, it was classified for the analyses reported below as a small school; schools with student enrolments in excess of 600 were classified as large schools. Grouping together students from South Australia and Queensland, 33 per cent were found to be attending small schools as thus defined and 66 per cent were attending large schools.

Individual attributes

The individual attributes included in the analyses were Sex of Student, General Achievement and Academic Self-concept.

Sex of Student. This variable was coded male or female from students' responses to an item in the Student Questionnaire. For the combined group

of South Australian and Queensland students there were 51 per cent male students and 49 per cent female students.

General Achievement. A measure of student achievement at school was obtained by combining, using unit weights, each student's corrected score on the IEA Word Knowledge Test and the IEA Science Test.

The Word Knowledge Test is derived from the IEA Population II and IV Word Knowledge Tests which are reported in Comber and Keeves (1973) and the statistical properties of which are described by Thorndike (1973). The tests are described by Walker (1976) as reasonably satisfactory measures of verbal ability. To increase further the reliability of the measure, the test was lengthened, in the Australian follow-up project (Rosier, 1978), from 40 to 60 items.

The Science Test comprises 30 items from the IEA Population II and IV Science Tests (Comber and Keeves, 1973). The items selected were shown by Rosier (1978) to have satisfactory levels of item facility and item discrimination and also to cover adequately the domain of science content and behavioural objective originally drawn up by the IEA testing committee.

Rosier (1978), using all continuing students in the follow-up project, formed the combined score on the word knowledge and the science tests into approximate quintiles. For the analyses reported below the quintile distribution was split at the approximate median. The bottom two quintiles were then coded as low General Achievement and the top three quintiles were coded as high General Achievement. The combined South Australian and Queensland students were thus formed into two groups of 39 per cent and 61 per cent of students respectively.

Academic Self-concept. Following Rosier (1978), the composite variable, Academic Self-concept, was formed from four variables: Self-estimate of Ability, Importance of Obtaining Good Results, Importance of Continuing Education, and Importance of Comparing Results. The four items appeared as follows in the Student Questionnaire:

1 What do you think of your ability? (Choose one):

A far below average
B below average
C slightly below average
D slightly above average
E above average
F far above average

2 How important is it to yourself that you get good results in tests and exams? (Choose one):

A not at all important
B slightly important
C fairly important
D very important

3 How important is it to yourself that you continue with your education after leaving secondary school? (Choose one):

A not at all important
B slightly important
C fairly important
D very important

4 How important is it that you know how your results compare with those of other students? (Choose one):

A not at all important
B slightly important
C fairly important
D very important

Standardized scores were computed for all subjects in the follow-up project and these were summed using unit weights. The resulting distribution of scores was formed into approximate quintiles (Rosier, 1978). Like the General Achievement measure, the combined South Australian and Queensland student quintile distribution was split at the approximate median. This resulted in a low Academic Self-concept group (47 per cent of students) and a high Academic Self-concept group (52 per cent of students) with approximately one per cent of students for whom there were missing data on one or more items.

School satisfaction

The School Satisfaction Scale comprised 10 Likert-type items contained within a group of 36 questionnaire items. The items included both statements and questions, for which the response was respectively Agree/Disagree or Yes/No. The actual items to which students were asked to respond were as follows:

1 The most enjoyable part of my life is the time I spend in school.
2 I generally dislike my school work.

3 There are many school subjects I don't like.

4 I enjoy everything about school.

5 School is not very enjoyable.

6 The only things I look forward to in school are weekends and holidays.

7 Would you like to leave school as soon as possible?

8 The only thing I like about going to school is the opportunity to meet my friends.

9 I hope eventually to study at a college or university.

10 I agree with people who say, 'School days are the happiest days'.

Four of the 10 items were worded such that an 'Agree' or 'Yes' response indicated satisfaction with school (scored +1; 'Disagree' or 'No' scored -1; and 'Omit' scored 0); the remaining six items were worded such that 'Disagree' or 'No' responses indicated satisfaction with school (these items were reverse scored). Factor analysis of the responses of the 852 continuing students in South Australia and Queensland resulted in two factors of which the first was readily interpretable as satisfaction/dissatisfaction with school. Factor loadings on the unrotated factor matrix ranged from 0.35 to 0.58. The second factor, which was identified principally by the first and last items, was less easily interpretable. Coefficient alpha computed on the eigen value of the first factor gave a reliability estimate of 0.75.

Interest in school subjects

Students' interest in the subjects taken at school were gauged from responses to the following six questionnaire items:

How interesting do you find the following school subjects? (Choose one in each row.):

		I am not studying this subject this year	not at all inter-esting	slightly inter-esting	fairly inter-esting	very inter-esting
1	English	(1)	(2)	(3)	(4)	(5)
2	Mathematics	(1)	(2)	(3)	(4)	(5)
3	Science	(1)	(2)	(3)	(4)	(5)
4	Social science subjects (history, geography etc.)	(1)	(2)	(3)	(4)	(5)
5	Commercial subjects (typing, book-keeping etc.)	(1)	(2)	(3)	(4)	(5)
6	Practical subjects (cookery, woodwork, etc.)	(1)	(2)	(3)	(4)	(5)

Relevance of school subjects

The perceived relevance or usefulness of subjects taken at school was gauged from students' responses to the following six questionnaire items:

How relevant or useful are these subjects to what you will be doing in your future occupation? (Choose one in each row.)

		I am not studying this subject this year	not relevant	slightly relevant	fairly relevant	very relevant
1	English	(1)	(2)	(3)	(4)	(5)
2	Mathematics	(1)	(2)	(3)	(4)	(5)
3	Science	(1)	(2)	(3)	(4)	(5)
4	Social science (history, geography etc.)	(1)	(2)	(3)	(4)	(5)
5	Commercial subjects (typing, book-keeping, etc.)	(1)	(2)	(3)	(4)	(5)
6	Practical subjects (cookery, woodwork, etc.)	(1)	(2)	(3)	(4)	(5)

Classroom behaviour

The variable Classroom Behaviour was obtained from students' descriptions of how they behave in class.

1 How would you describe your behaviour in class?

A I often seem to be in trouble.

B I am sometimes in trouble.

C I am hardly ever in trouble.

Results of the Study

Profile of students and schools in two States

What schools do the students sampled in this study go to? Writing about students in South Australia, Blandy and Goldsworthy (1977:66) comment:

> Probably no other question probing the background of a South Australian carries a greater load of social implications. Religion, politics, social class, life-style and even adherence to particular League football clubs can probably be more accurately guessed from the response to this one question than to any other which one could think of.

In South Australia, 82 per cent of the students sampled were attending state secondary schools and 18 per cent were at either Catholic or

independent schools; in Queensland only 61 per cent of the students sampled were at state schools compared with 39 per cent at non-state schools. This is a marked difference between States and, if Blandy and Goldsworthy are correct in their assumption about the importance of the school attended, this factor needs to be taken into account in interpreting the results below.

Seventy-three per cent of students attend metropolitan schools in South Australia with 27 per cent at non-metropolitan schools; in Queensland only 44 per cent are at metropolitan schools and 56 per cent are at non-metropolitan schools. Again this is a clear difference between the two States, a finding which is in accord with the larger rural base of Queensland compared with that of South Australia.

Thirty-six per cent of the South Australian students are at schools with fewer than 600 students (defined here as small schools) and 64 per cent are at large schools; in Queensland, by contrast, 28 per cent of the students attend small schools and 67 per cent attend large schools (for five per cent of students the size of school attended was missing). While the proportion of students in large schools is approximately the same in both States, there is a tendency for a greater number of the students sampled to be in small schools in South Australia than in Queensland.

The picture of students in schools that emerges is that the 'typical' student in South Australia has a very high chance of being at a state school in metropolitan Adelaide with a student enrolment greater than 600. In Queensland the 'typical' student is also likely to be attending a state high school though the odds are less high and this school is most likely to be a large country high school (or, more accurately, a school outside metropolitan Brisbane).

The home environments of students in South Australia and Queensland appear broadly similar, at least as they have been measured in this study. The 'typical' student in each State comes from a home of high average socio-educational level (4.9 in both States on an eight-point scale); literacy resources in the home have a high value (approximately 9.5 for both States on a 12-point scale); while parental encouragement appears neither very high nor low (approximately 6.9 for both States on a 12-point scale).

As far as individual attributes of students are concerned, males and females are quite evenly split in the South Australian sample, while in Queensland there are marginally more males (52 per cent) represented than females (48 per cent). This difference in sex representation between States

does not appear large, yet sex is known to be related to attitudes. There is a marked difference between the States on the measures of general achievement and academic self-concept. For both General Achievement ($t = 4.01$, $p = 0.000$) and *Academic Self-concept* ($t = 2.63$, $p = 0.009$), the differences favour students in Queensland. These findings are not entirely unexpected in view of an earlier study (Anderson, 1978) which found measures of cognitive performance to be positively correlated with the selectivity of education systems in Australia; and in that study Queensland schools in general were shown to be more selective, that is, they retained a smaller proportion of 16-year-olds, than did South Australian schools.

The major purpose of the present study is not to make inter-State comparisons. Nevertheless, it is important to examine the two State samples in terms of the antecedent or explanatory variables employed in the subsequent analyses. In summary, it is noted that there are few differences between the samples on any of the home background factors or on sex. There are marked differences though on school factors with a greater proportion of students in Queensland attending non-state schools and non-metropolitan schools, and a smaller proportion of students in South Australia attending small schools. As well, the general achievement and academic self-concept of students in Queensland is higher than that of the corresponding sample of students in South Australia.

Attitudes to subjects studied at school

In analysing students' responses to subjects studied at school which are rated as interesting and which are perceived to be relevant for later career choices, it is necessary to take account of those students who do not study particular subjects. Such student responses were coded with missing responses, and accordingly the numbers of students expressing a preference for particular subjects vary from subject to subject.

Table 2.1 shows the mean preference rating for six major groupings of subjects studied in secondary schools in South Australia and Queensland. Examination of the mean ratings shows that the subjects rated most interesting in South Australia and Queensland are practical subjects. Practical and commercial subjects, it is to be noted, are taken by a relatively small proportion of students in both States. If examination is made of those subjects which are rated as most interesting and which are

Table 2.1 Most Interesting Subjects Taken at School: Mean Responses for Students in South Australia (n = 498) and Queensland (n = 354)

Subject	South Australia			Queensland		
	$\bar{X}^a$	s	n	$\bar{X}^a$	s	n
English	3.9	0.9	479	3.9	0.9	353
Mathematics	3.8	0.9	438	3.9	0.9	294
Science	4.2	0.8	431	4.3	0.8	269
Social sciences	4.1	0.9	419	4.2	0.8	211
Commercial	4.1	0.9	104	3.9	1.0	80
Practical	4.6	0.7	161	4.5	0.8	97

[a] Interpretation of means: 2 = not at all interesting
3 = slightly interesting
4 = fairly interesting
5 = very interesting

taken by a majority of students in each sample, a remarkable similarity between the two States is observed. For both South Australia and Queensland the most interesting subject is thought to be science, followed in turn by the social sciences, English and, finally, mathematics.

It is interesting to compare subjects which are thought to be of most relevance for the future (Table 2.2) with subjects considered most interesting. Again examination is made of those subjects taken by a majority of students in both States. In South Australia, mathematics is perceived as the most relevant or useful subject. This is followed by English, then science and, finally, the social sciences. In Queensland a very similar pattern holds. English and mathematics tie as the most relevant subjects, followed by science and the social sciences. The general inversion, for both States, of mathematics and social sciences when ratings are made according to interest and relevance is clearly observable. Mathematics is rated lowest in interest but highest in relevance; social science subjects are rated of high interest but low relevance. English, too, is not a high interest subject but it is considered very relevant for future occupations. Science, interestingly, is rated as a very high interest subject but of lesser relevance, at least compared with mathematics and English.

Table 2.2 Relevance of Subjects Studied at School for Future Occupations: Mean Responses for Students in South Australia (n = 498) and Queensland (n = 354)

Subject	South Australia			Queensland		
	$\bar{X}^a$	s	n	$\bar{X}^a$	s	n
English	4.1	0.9	478	4.2	0.9	351
Mathematics	4.2	1.0	441	4.2	0.9	297
Science	4.0	1.1	422	4.1	1.1	264
Social sciences	3.3	1.1	411	3.5	1.1	204
Commercial	4.0	1.1	112	3.7	1.2	82
Practical	3.6	1.2	161	3.9	1.1	90

[a] Interpretation of means: 2 = not relevant
3 = slightly relevant
4 = fairly relevant
5 = very relevant

School satisfaction

The School Satisfaction scale of 10 items taps a range of attitudes from 'generally dislike school work and wish to leave school as soon as possible' to 'enjoy the time spent at school and hope eventually to study at a college or university'. Scores on the scale range from -10 through zero to +10, with negative scores indicating dissatisfaction and positive scores satisfaction with school. As an aid to interpreting scores, the following cut-off points were formed:

Range	Rating	Remarks
-6 to -10	Very dissatisfied	For a score to be in this range, there would need to be 8 negative responses to 2 positive responses or a response pattern more extreme.
-2 to -5	Moderately dissatisfied	
-1 to +1	Neutral	For a score to be in this range, responses would need to be evenly split or 5 : 4 in either direction with one item omitted.
+2 to +5	Moderately satisfied	
+6 to +10	Very satisfied	As above: 8 positive responses to 2 negative responses or a response pattern more extreme.

Table 2.3 School Satisfaction Scores for Secondary Students in South Australia (n = 498) and Queensland (n = 354)

Score	South Australia		Queensland	
	n	%	n	%
Very dissatisfied (-6 to -10)	90	18.0	40	11.2
Moderately dissatisfied (-2 to -5)	96	19.2	43	12.2
Neither dissatisfied nor satisfied (-1 to +1)	69	13.9	44	12.4
Moderately satisfied (+2 to +5)	137	27.6	109	30.9
Very satisfied (+6 to +10)	104	20.8	114	32.2
Missing	2	0.4	4	1.1
Total	498	100.0	354	100.0

Student responses on School Satisfaction, for the total sample (n = 852) divided by State, are shown in Table 2.3. Leaving aside neutral responses (approximately 13 per cent in each State), it is seen that about 48 per cent of South Australian students express satisfaction with school compared with 63 per cent of Queensland students; the percentages expressing a moderate degree of dissatisfaction are 19 per cent in South Australia and 12 per cent in Queensland; while the percentages expressing extreme dissatisfaction are 18 per cent for South Australia and 11 per cent for Queensland. These responses show fairly clearly that students in the Queensland sample express more satisfaction with school than do their counterparts in South Australia. The average student response for Queensland (2.12) falls in the moderately satisfied range while the average for students in South Australia (0.38) is in the neutral range: this difference is highly significant ($t = 4.95$, $p = 0.000$).

Classroom behaviour

A measure of classroom behaviour was included in the study, since this variable is often considered to be associated with student attitudes and motivations. It is recalled that students were asked to describe their

Table 2.4 Self-Reported Classroom Behaviour: Responses of Secondary Students in South Australia (n = 498) and Queensland (n = 354)

	South Australia		Queensland	
Classroom behaviour	n	%	n	%
Often in trouble	23	4.6	15	4.2
Sometimes in trouble	174	34.5	129	36.4
Hardly ever in trouble	302	60.6	210	59.3
Missing	1	0.2	0	0.0
Total	498	100.0	354	100.0

behaviour in class. The responses of the South Australian and Queensland students appear in Table 2.4. Just less than two-thirds of the students in both States say they are hardly ever in trouble; while about a third say they are sometimes in trouble; only about four per cent in both States claim that they are often in trouble. These differences between States are not significant ($t = 0.26$, $p = 0.794$). It is possible, of course, that quite different results might have been obtained had the same question been asked of the students' teachers.

Home, school and individual factors

The analysis of results above has focused on presenting a broad picture of students in schools in both South Australia and Queensland. Almost inevitably one is tempted to make comparisons between States and, indeed, the results of student attitudes towards subjects in school, student satisfaction with school and self-reported classroom behaviour are presented to facilitate such comparisons. These findings are of general interest and it is useful for teachers, principals, and educational administrators in each State to be aware of such student opinion.

Of considerably greater interest, both theoretically and from a practical point of view, is the relationship between student attitudes and motivations and what were termed above the antecedent variables - the home, the school and the student. A knowledge of the relationship between these variables does not answer questions of cause and effect. However, such knowledge does begin to provide some insight into student motivations, interests and attitudes.

Table 2.5 Differences (t-tests) in Attitudinal Outcomes between Students from Homes that Vary in Terms of (a) Socio-educational Level (b) Literacy Resources and (c) Parental Encouragement: South Australia and Queensland

Attitudes and motivations	Home background					
	Socio-educational Level[a]		Literacy Resources[a]		Parental Encouragement[a]	
	SA	Qld	SA	Qld	SA	Qld
Interest in subjects taken at school						
1 English	H	H			H	H
2 Mathematics						
3 Science			H	H		
4 Social sciences	H	H		H	H	
5 Commercial						
6 Practical						
Relevance of subjects taken						
1 English				H	H	
2 Mathematics						
3 Science			H			
4 Social sciences		H			H	H
5 Commercial						
6 Practical						
Classroom behaviour						
School satisfaction	H		H	H	H	

[a] H indicates High group > Low group ($p < 0.05$)

Home background factors. The three home background variables - Socio-educational Level, Literacy Resources and Parental Encouragement - were each split to form a high group and a low group of students. A series of t-tests was then computed over the four sets of attitudinal outcomes (Interest in Subjects, Relevance of Subjects, School Satisfaction and

Classroom Behaviour) for South Australia and Queensland separately. For conciseness the results are presented in tabular form (Table 2.5) with only those differences significant at the five per cent level appearing. The letter 'H' in Table 2.5 indicates that the high group (say on Socio-educational Level) expressed a greater interest (in, say, English) than the low group on Socio-educational Level. This result, as inspection of Table 2.5 shows, holds for both Queensland and South Australia.

The advantage of replicating the one study in two States is that more stable relationships between variables are shown up. When computing a number of t-tests, some will appear significant by chance (the actual proportion corresponding to the significance level selected). If, however, a significant difference emerges for both South Australia and Queensland, there is a greatly increased likelihood of a genuine difference. Note is made below of those significant differences which appear for students in both States.

The high Socio-educational Level group rates English and social science subjects as more interesting than the low Socio-educational Level group of students. Students in the high Literacy Resources group, however, rate science as more interesting and, in addition, are more satisfied with school than is the corresponding low group. Students in the high Parental Encouragement group consider English more interesting and perceive social science subjects as more relevant to future occupations than do the low Parental Encouragement group of students.

School factors. The same procedure as above was adopted of computing t-tests between types of school (state and non-state), between school locations (metropolitan and non-metropolitan), and between school sizes (small and large) for all sets of attitudinal outcomes. The results for both South Australia and Queensland are shown in Table 2.6 with, again, only those differences significant at the 0.05 level appearing.

Few significant differences appear on the major school factors and still fewer of these hold over both States. In fact, the only consistent difference to note is that social science subjects are rated more interesting in non-state schools than in state schools.

Individual attributes. A series of t-tests was computed between male and female students and between students high and low respectively on General Achievement and Academic Self-concept for the four sets of attitudinal outcomes. Those differences which are significant at the 0.05 level are shown in Table 2.7 for South Australia and Queensland separately.

Table 2.6 Differences (t-tests) in Attitudinal Outcomes between Students Attending (a) State and Non-State Schools (b) Metropolitan and Non-Metropolitan Schools and (c) Small and Large Schools: South Australia and Queensland

Attitudes and motivations	Schools					
	Type of school[a]		Location[b]		School size[c]	
	SA	Qld	SA	Qld	SA	Qld
Interest in subjects taken at school						
1 English		N/S				
2 Mathematics						
3 Science						
4 Social sciences	N/S	N/S	M		S	
5 Commercial						
6 Practical						
Relevance of subjects taken						
1 English						
2 Mathematics	S		M			
3 Science			M			L
4 Social sciences	N/S				S	
5 Commercial						S
6 Practical						
Classroom behaviour						
School satisfaction						

[a] N/S indicates Non-State > State ($p < 0.05$)
S indicates State > Non-State ($p < 0.05$)

[b] M indicates Metropolitan > Non-Metropolitan ($p < 0.05$)

[c] S indicates Small > Large ($p < 0.05$)
L indicates Large > Small ($p < 0.05$)

Table 2.7 Attitudinal Outcomes between (a) Male and Female Students (b) High and Low Achieving Students and (c) Students Having High and Low Academic Self-Concept: South Australia and Queensland (t-tests of Differences)

Attitudes and motivations	Individual attributes					
	Sex[a]		General Achievement[b]		Academic Self-concept[b]	
	SA	Qld	SA	Qld	SA	Qld
Interest in subjects taken at school						
1 English	F	F				
2 Mathematics	M				H	H
3 Science		F	H	H	H	H
4 Social sciences	F		H	H		H
5 Commercial	F	F				
6 Practical			L			
Relevance of subjects taken						
1 English	F	F				
2 Mathematics	M	M			H	H
3 Science	M		H	H	H	H
4 Social sciences	F	F			H	H
5 Commercial	F					H
6 Practical	M		L			H
Classroom behaviour		F			H	H
School satisfaction	F	F	H	H	H	H

[a] F indicates Female > Male ($p < 0.05$)
M indicates Male > Female ($p < 0.05$)

[b] H indicates High > Low ($p < 0.05$)
L indicates Low > High ($p < 0.05$)

There are a number of sex differences. Females rate English and commercial subjects as more interesting than do males. Females also perceive English and the social science subjects as more relevant for future occupations than do males. By contrast, males perceive mathematics as more relevant than do females. Finally, females are more satisfied with school than males are.

Students in the high General Achievement group rate both science and the social science subjects as more interesting, and see science as more relevant, and as well are more satisfied with school than the low achievement group.

Many significant differences result from comparison of the high and low Academic Self-concept groups. For instance, the high Academic Self-concept group of students rates mathematics and science as more interesting; these students recognize mathematics, science and the social science subjects as more relevant; they rate their behaviour in class as better; and they are more satisfied with school than are students in the low Academic Self-concept group.

Summary and Postscript

This study has sought to gauge students' attitudes to subjects studied at secondary school and student satisfaction with school. The study is based on samples of 16-year-old students in schools in South Australia and Queensland who were participating in a larger, longitudinal project conducted by Dr Malcolm Rosier of the Australian Council for Educational Research. The examination of relationships between variables using two separate State samples provided a firmer basis for statements about student interests and motivations than would have been possible had a single sample been employed.

Based on the two samples of students available, there would appear to be some potentially important differences between students and schools in South Australia and Queensland respectively. A smaller proportion of the students sampled in Queensland, for example, were attending state schools than in South Australia and there were more students, proportionally, in non-metropolitan schools in Queensland. There do not appear to be marked differences in the home backgrounds of students, as they have been measured in this study, between students in the two States. There are differences in the level of general achievement and academic self-concept, and these differences may be due to the holding power or retentivity of schools in South Australia and Queensland.

Interests in subjects studied at secondary school are very similar across the two States. Science is the most interesting subject, report the students, followed by the social sciences, English and mathematics. When students were asked how useful these subjects might be for future occupational choices, mathematics and English moved to the top positions followed next by science and the social science subjects.

Examination was made of the degree to which students consider school to be satisfying. Between 20 and 40 per cent of students appear to be moderately to very dissatisfied with school, a larger proportion of these being students in South Australia. Conversely, about 45 to 65 per cent of students appear moderately to very satisfied with school in the two States and, again, fewer of these are South Australian students.

Analysis of home background factors as these relate to student attitudes and motivations reveals, in general, that students from homes of high socio-educational level, high literacy resources and high parental encouragement are more interested in subjects like English, social sciences, and science, see these subjects as more relevant, and are more satisfied with school than students from homes of low socio-educational level, low literacy resources and low parental encouragement.

There were few school factors that were at all consistently related to student attitudes and motivations. The one exception was the preference for social science subjects expressed by students in non-state schools in both South Australia and Queensland.

Certain individual attributes of students appeared to be highly related to student attitudes and motivations. There was a clear preference by female students for subjects like English and commercial subjects and these, together with social science subjects, were seen as most relevant for future occupations. Female students also expressed more satisfaction with school than did male students. Male students, on the other hand, found mathematics of more interest and relevance than did female students. In terms of achievement and academic self-concept, the high groups generally favoured mathematics, science, and social sciences, found these subjects more relevant, reported they were less often in trouble in class, and were more satisfied with school than low-achievers and students with low academic self-concepts.

The results of the first phase of this project have, of necessity, been reported rather briefly. The researcher's task has been to analyse the data

and present the findings. It is for the educational administrator and policy-maker to tease out the implications and perhaps suggest future directions for research.

3 SOME COMMENTS ON THE PROJECT

The analysis undertaken above provides us with a disturbing picture of the degree of satisfaction of students with secondary schooling and it poses some puzzling questions about students' attitudes to the subjects which they study in schools. Certainly those who work in schools must take such a study very seriously and accept the challenge to 'tease out the implications' and 'suggest future directions for research'. For educational research is rather like an onion. Just as peeling back one skin of an onion you find another, and behind that another, so each educational research investigation discloses a further unseen layer of possibilities begging to be explored. By such discussions between educational researchers, teachers and administrators, new insights can be gained into the success or otherwise of educational programs and new approaches can be developed.

There are several matters arising from the study which particularly capture my interest, and I shall comment upon each in turn. Firstly, it needs to be stressed that the study was undertaken across two States but that it was not designed to be an indirect evaluation of the success of the two systems. As had been said, to treat it as providing material for comparative assessment would be to misuse and misunderstand the results. Secondly, I should like to point to the significance of the dates when the data were collected, and to some aspects of the educational and socio-economic structures in Queensland and South Australia which, while they certainly are broadly similar, also have some marked differences. The treatment of differences in school factors such as type, location and size, which differ substantially between the States, raises some interesting questions, as does that of sex-stereotyping of students. Finally I should like to emphasize the differences between what is statistically significant and what is educationally significant in relation to the findings.

Let us begin then with the representativeness of the samples. The original International Association for the Evaluation of Educational Achievement sample was certainly above reproach. The follow-up sample, however, that is the residue of the original sample still in school at age 16, limits the value of the survey. There were 498 South Australian students and 354 Queensland students in the follow-up group, whereas in the original IEA sample the numbers in Queensland were at least equal to those in South Australia. Plainly this indicates that retention rates are higher in South Australia.

This accords with Anderson's earlier study in 1978 which is referred to in the paper.

Although it is very unwise to draw simple conclusions from the fact that students remain at school, especially at a time of high unemployment, nonetheless it is probably not unreasonable to interpret retention rates as a very rough measure of school satisfaction. On this basis, one might conclude that a higher proportion of South Australian students felt a higher degree of school satisfaction than was the case among the Queensland students.

Such a conclusion however is made even more questionable because of the two-tier secondary system in Queensland. It is more sensible for Queensland students to leave at the end of Year 10 if they do not propose to finish Year 12. Nevertheless, it is likely to be the low-achievers and students gaining low satisfaction from school who leave.

Let us now turn to the data which were collected in 1970 and were followed up in 1972. Any generalization to the present time on data collected at that time must be undertaken with the greatest care. Indeed, I believe that if one were to select a cohort of students which, more than any other, has experienced an excess of upheaval during their school life then it must surely be this one. Certainly this is true of South Australia. The school life of this student group has encompassed an extraordinary challenge of values. It is not an overstatement to say that education underwent a fundamental change during the time they attended school. Let us briefly recall a few of the events which they not only witnessed, but in which they actually participated, when schools became the battlegrounds where a large number of normative challenges were fought out.

While this cohort was in primary schools, there were deep-seated divisions over curriculum changes. In South Australia, this argument manifested itself most obviously in the introduction of courses in 'new mathematics'. So deep and bitter were the divisions which the innovations caused, that in South Australia a Royal Commission was set up to look into the matter, although the incident which sparked off the affair was played out among South Australian teachers in the Northern Territory.

For those whose memories do not go back that far, it can simply be said that the incident was a question of advice and support for teachers of the new mathematics in the Northern Territory. One must also say that the question was compounded by that of a principal's autonomy in making decisions about matters of concern to the school for which he was responsible. For this was

also the time when the question of the autonomy, responsibility, and freedom of teachers and principals moved from the pages of reports written by critical overseas commentators and academics into the schools themselves. The outcome was that in various ways state education departments in Australia accepted that they could not and they should not dominate the day-to-day activities of teachers and students in the schools.

Inevitably, such dramatic and fundamental changes caused considerable turmoil, especially as the changes generally took the form of ex cathedra statements which granted the much sought after freedom and authority to schools but offered little advice on how that freedom and authority might be exercised.

When this group of students then moved into high school, there were more changes awaiting them. All secondary schools, in South Australia at least, became comprehensive. This bold move took place at a time when funds were short and when the provision of both buildings and teachers therefore lagged woefully behind need. But from the point of view of students, perhaps the most fundamental challenges were those which questioned the conventional codes of behaviour and discipline. Pamphleteers stood outside school gates and distributed hand-outs advocating student protest, while posters and underground material appeared on the walls of school rooms with suggestions about sexual and personal attitudes and behaviour in language which had never before been seen in classrooms.

Many parents and teachers were horrified, as were most educational administrators. Reaction was quick and action was drastic. Principals in Adelaide were given the phone number of the police operations room and were invited to make direct contact with police when they felt that the welfare of students was at risk because of the proximity of subversive elements, not only on but near school property. Fears increased as hallucinogenic drugs became a matter of concern, and inevitably they were associated with those who were seen to be undermining the educational status quo.

At this time too, groups who had for so long been denied a voice in society suddenly exercised their rights to be heard. Many oppressed groups such as women, Aboriginals, homosexuals, and others took the opportunity to put their cases before students. Inevitably, this open discussion in schools, too, brought its own reaction from those who felt that schools should not permit issues of these sorts to be discussed. Each of us will have our own memories of those days; of protests arranged by students in a

park to discuss their real and imagined grievances, with even the Education Department itself the scene of a protest, as educational administrators smelled the smoke of burning school ties and heard the strident voices of abusive secondary and tertiary students.

Could any group of students have lived through such an era and not be critical of the uncertain institutions which served them and which reeled under the impact of these sudden challenges?

If there is any one single incident which encapsulates the many incidents of that time it is the publishing of and public reaction to The Little Red School Book. And this is turn brings me to the assumption in the survey that the two educational and socio-economic structures in Queensland and South Australia are broadly similar. If my memory serves me correctly, Queensland banned that book and South Australia did not. This is of some significance and indicates that there are quite fundamental attitudinal differences between the two communities, as represented by the governments of all political colours.

I do not want to consider the complex relationships between politics and education in detail but it does seem to me that two state governments which approach educational inquiries as differently as did South Australia in 1968 and Queensland in 1978 can scarcely be seen to share common assumptions about either the provision of education or the way in which decisions should be made about schools.

In 1968 the South Australian Government established an expert committee of inquiry comprising a distinguished academic, a Professor of Education from an interstate university, a businessman and a prominent judge. This committee differs markedly from that set up some 10 years later in Queensland by a government of the same colour.

Let us turn now to a consideration of the differences in such factors as type, location and size of schools. These vary substantially from State to State in this Commonwealth and, I believe, account for some differences in achievement and satisfaction. One would predict that satisfaction would be higher among fee-paying students in non-government schools and this is implied by the data. Furthermore, 14 per cent of total enrolments in South Australian secondary schools are non-government, while 27 per cent of total enrolments in Queensland are in non-government schools, but in the samples the non-government percentages are increased to 18 per cent and 39 per cent respectively, showing a higher retention rate in non-government schools.

Similarly, non-metropolitan schools, one would predict, should be associated with higher satisfaction although other factors may work against their higher retention as they would be smaller schools. Why do the data suggest otherwise? Another of the very useful things that the study points out, I believe, is its support for other research evidence which suggests:

> While some signs exist that girls ... would have to assert themselves more and make something of their own lives, the effects of their life experiences reveal themselves most clearly in the majority's more negative self-image, their passive acceptance of society's expectations for girls and the discrepancy between what they would like and what they actually expect to achieve (Edgar, 1974:80).

Mathematics is the subject which boys see as relevant for future occupations, while girls see English and commercial subjects as relevant. Such perceptions illustrate that subject choice along sex-stereotyped lines has already influenced students' career expectations by the time they reach 16 years of age. One must suspect that if students perceive commercial subjects as relevant then they already have decided to opt for a job in an office as a typist and that they do not aspire to a university course. Although girls appear more satisfied with schooling, other evidence (for example, the South Australian Matriculation results) seems to indicate that as girls become more successful they

> ... see themselves as being best at inter-personal forms of competence, a self-characterisation accompanied by deference to others, low self-confidence, high self-deprecation and a tendency to blame themselves for failings which could well be attributed, as it is by boys, to external limitations (Edgar, 1974:79).

This is the dilemma in which we find ourselves when we look at the socialization of girls. Perhaps they are more satisfied with their schooling because they expect less from it. They are satisfied and they conform to teacher and parental behaviour expectations because they lack the self-confidence to question the expectations others have of them. They may, too, be more satisfied with schooling because the female stereotype, which stresses among other things pacificity, conformity and deference, makes it more possible for them to acquiesce in the demands of teachers and schools than can boys.

This problem needs further examination and I believe that we should be looking into such things as:

1 sex differences in secondary subject choice;

2 the influence that teacher attitudes towards sex differences in ability have on a student's achievement;

3 the influence of teachers as sex-role models for students;

4 methods of improving the assertiveness and self-confidence of girls;

5 methods of incorporating into the curriculum of schools information about the changing social role of both sexes; and

6 the place of vocational training in schools.

Let me finish by discussing some aspects of the questionnaire and the significance of the findings about satisfaction for students. Without commenting at length on the questions put to respondents in the original questionnaire, one must ask if these are really likely to indicate satisfaction. For example, the questions to assess parental encouragement were as follows:

Parental Encouragement

Parental Encouragement is a composite of four items in the student questionnaire:

1 When you talk at home, do your parents (indicate one):

A always or almost always insist that you speak correctly?

B sometimes insist that you speak correctly?

C let you speak how you please?

2 When you show your parents anything you have written, do they (indicate one):

A always or almost always check your spelling?

B sometimes check your spelling?

C hardly ever or never check your spelling?

3 In your spare time at home, do your parents (indicate one):

A encourage you to read (books, not comics) as much as possible?

B sometimes suggest you read (books, not comics)?

C not mind if you never read?

4 When you get home from school, do your parents (indicate one):

A always or almost always want to know how you have done?

B sometimes inquire about your school work?

C hardly ever or never ask you about school?

Are these questions likely to indicate whether parents encourage their children, or whether they are nagging hypercritical parents who might well

actually discourage their children? Question 4 obviously assumes that parents are at home when the student arrives home. Is such an assumption warranted? Does it suggest that the questionnaire might make certain assumptions about home life?

But what of the results? Aristotle once said, 'Learning cannot be acquired without some pain'. While I accept that the error of the past may have been to measure the amount of learning by the amount of pain inflicted, the error of the present might well be that we try to do away with pain altogether. This is not to say that schools need to be unhappy places. Indeed, a valid purpose of education is that students should learn how to be happy, both now and in the future. Generally this is learnt not from what they are taught but, I believe, more from how they are taught.

Nevertheless, we must be wary of evaluating satisfaction with schools with too much weight being given to students' perceptions of whether schools engender satisfaction, and whether subjects are interesting, relevant or useful. It is only probably at the extreme negative end that school satisfaction affects school performance. Hence differences which may be statistically significant may not be educationally significant. That is a matter which requires careful judgment.

We must also ask ourselves if the finding, that students with high socio-educational backgrounds, literary resources and parental encouragement differ in their assessment of the interest and relevance of school subjects, suggests that these students should be treated differently. None of us would argue against each student being treated on an individual basis as far as possible, nor against the need for special programs and resources for the disadvantaged. On the other hand, few of us question the desirability and indeed the morality of treating students differently on the basis of membership of what amounts to a particular socio-economic group.

Finally, it seems to me that it may well be the case that the fundamental questioning of authority relationships in the community at large and within the schools, which was occurring at the time that the data were collected, had an important impact on the level of satisfaction or dissatisfaction that 16-year-olds felt about their schools. It might also be useful to bear in mind that those 16-year-olds who were boys were faced with the prospect of being called up in support of what was by then an unpopular war. The whole question of authority relationships as they affect students in schools may well be one of underlying skins of the onion which would merit further research investigation.

REFERENCES

Anderson, J.
1978 School performance, socioeconomic status and the selectivity of school systems. Unpublished paper, Flinders University of South Australia.

Anderson, L.
1969 'The importance of educational cooperation in educational research.' Educational Leadership 27:144-145.

Blandy, R. and T. Goldsworthy.
1977 Educational Opportunity in South Australia. (Working Paper Series No.21). Adelaide: Flinders University, Institute of Labour Studies.

Botsman, P.B. and R.K. Browne.
1978 Community Attitudes to Education in Queensland. Brisbane: Kelvin Grove Teachers College.

Bourke, S.F. and J.P. Keeves (eds).
1977 Australian Studies in School Performance, Vol.III: The Mastery of Literacy and Numeracy. Canberra: Australian Government Publishing Service.

Broom, L., F.L. Jones and J. Zubrzycki.
1965 'An occupational classification of the Australian workforce.' Australian and New Zealand Journal of Sociology 1:Suppl. 1-16.

Comber, L.C. and J.P. Keeves.
1973 Science Education in Nineteen Countries. Stockholm: Almqvist and Wiksell.

Dunne, G.V.
1978 Survey of Public Opinions about Schools. Adelaide: South Australian Council for Educational Planning and Research. (In press).

Edgar, D.E.
1974 'Adolescent competence and sexual disadvantage.' La Trobe Sociology Papers 10:79-80.

Fleishman, E.A. (ed.).
1967 Studies in Personnel and Industrial Psychology (Rev. ed.). Homewood, Ill.: Dorsey.

Heise, D.R. and G.W. Bohrnstedt.
1970 'Validity, invalidity, and reliability.' Pp.104-129 in E.F. Borgatta and G.W. Bohrnstedt (eds), Sociological Methodology. San Francisco: Jossey-Bass.

Husén, T. (ed.).
1967 International Study of Achievement in Mathematics (2 vols). New York: Wiley; Stockholm: Almqvist and Wiksell.

Jackson, P.W. and J.W. Getzels.
1959 'Psychological health and classroom functioning: a study of dissatisfaction with school among adolescents.' Journal of Educational Psychology 50:295-300.

Keeves, J.P.
1972 Educational Environment and Student Achievement. Hawthorn, Vic.: Australian Council for Educational Research.

Keeves, J.P.
1974 Some Attitude Scales for Educational Research Purposes. Hawthorn, Vic.: Australian Council for Educational Research.

Krathwohl, D.R., B.S. Bloom and B.B. Masia.
1964 Taxonomy of Educational Objectives, Handbook 2: Affective Domain. London: Longmans.

Meyer, G.R.
1963 'Factors related to scientific attitudes within the secondary schools of an Australian city.' Australian Journal of Education 7:21-40.

Rosier, M.J.
1978 Early School Leavers in Australia. Stockholm: Almqvist and Wiksell; Hawthorn, Vic.: Australian Council for Educational Research.

Rosier, M.J. and W.H. Williams.
1973 The Sampling and Administration of the IEA Science Project in Australia 1970: A Technical Report. Hawthorn, Vic.: Australian Council for Educational Research.

Smith, P.C.
1967 'The development of a method of measuring job satisfaction: the Cornell studies.' Pp.343-350 in E.A. Fleishman (ed.), Studies in Personnel and Industrial Psychology (Rev. ed.). Homewood, Ill.: Dorsey.

Tenenbaum, S.
1944 'Attitudes of elementary school children to school, teachers and classmates.' Journal of Applied Psychology 28:134-141.

Thorndike, R.L.
1973 Reading Comprehension Education in Fifteen Countries. Stockholm: Almqvist and Wiksell.

Van Til, W.
1976 'The crucial issues in secondary education today.' Pp.1-29 in National Society for the Study of Education, Issues in Secondary Education. (Seventy-fifth Yearbook, Part II). Chicago: University of Chicago Press.

Walker, D.A.
1976 The IEA Six-Subject Survey: An Empirical Study of Education in Twenty-one Countries. Stockholm: Almqvist and Wiksell.

IEA (AUSTRALIA) REPORTS

The IEA (Australia) Report series contains technical reports and other documents relevant to the IEA projects in Australia. The series also includes reprints of articles in Australian or overseas publications; these reports are marked with an asterisk. The nett single copy cost, which includes postage, is marked in brackets.

Orders and requests for IEA (Australia) Reports, accompanied by payment, should be sent to:

The Sales Section,
Australian Council for Educational Research,
PO Box 210, Hawthorn 3122, Victoria, Australia.

1973 series

Note: the reprints - numbers 1-4, 6 and 9 - are now published as a single volume: cost $2.00.

1973: 5 Malcolm J. Rosier
Variation Between Australian States in Science Achievement.
Paper: ANZAAS Congress, Perth, 13-17 August 1973. (Cost: 50 cents)

1973: 7 Malcolm J. Rosier and Wendy H. Williams
The Mobility of Teachers of Science in Australia 1970-1972.
(Cost: $1.00)

1973: 8 Malcolm J. Rosier and Wendy H. Williams
The Sampling and Administration of the IEA Science Project in Australia 1970: A Technical Report. (Cost: $2.00)

1973: 10 John P. Keeves
Variation Between Countries in Science Achievement.
Paper: ANZAAS Congress, Perth, 13-17 August 1973. (Cost: 50 cents)

1974 series

1974: 1 Kenneth N. Ross
An Examination of the Internal Structure of the Coopersmith Self-esteem Inventory for Australian 16-year-olds. (Cost: 50 cents)

1974: 2 John P. Keeves
The Effects of the Conditions of Learning in the Schools on Educational Achievement. (Cost: 50 cents)

1974: 3 Malcolm J. Rosier
Implications of the Results of the IEA Science Project for the Teaching of Science in Australia. (Cost: 50 cents)

1974: 4* John P. Keeves
The IEA Science Project: Science Achievement in Three Countries - Australia, the Federal Republic of Germany and the United States. In Implementation of Curricula in Science Education. Cologne: German Commission for UNESCO, 1974. (Pages 158-178) (Cost: 50 cents)

1974: 5 Malcolm J. Rosier
Factors Associated with Learning Science in Australian Secondary Schools. Comparative Education Review, 1974, 18, 2, 180-187. June 1974. (Cost: 50 cents)

1974: 6 John P. Keeves and Alison D. Read
Sex Differences in Preparing for Scientific Occupations.
(Cost: 50 cents)

1975 series

1975: 1 John M. Owen
The Effect of Schools on Achievement in Science. (Cost: $3.50)

1975: 2 Alison F. Wilson
The Effects of Schools in Victoria on the Science Achievement of Junior Secondary Students. (Cost: $1.50)

1975: 3 U. Ozolins and J.P. Keeves
Concerning Leisure. (Cost: $3.50)

1976 series

1976: 1 R. Lewis
Transition from School to Post-secondary Education in Australia.
(Cost: $2.50)

1976: 2 J.P. Keeves
Curricular Factors Influencing School Learning: Time and Opportunity to Learn. (Cost: $1.00)

1976: 3 R. Lewis
Transition from schooling at Year 12 to work in Australia.
(Cost: $3.00)

1977 series

1977: 1 Patrick McDonnell
The effects of school ability on educational expectations in fifteen countries. (Cost: $1.50)

1978 series

1978: 1 Jonathan Anderson and John Steinle
Student Attitudes and Motivations Towards School: Profile of Secondary School Students in South Australia and Queensland.
(Cost: $2.00)

IEA (Australia) Newsletter

IEA (Australia) Newsletter is published at irregular intervals. The issues to date are No.1 (November 1971), No.2 (July 1973), No.3 (July 1974) and No.4 (May 1976). Persons wishing to obtain the newsletter, which is free of charge, should contact Dr Rosier.